Some new and remarkable records of moths from Thailand (Lepidoptera: Geometridae, Noctuidae, Notodontidae)

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Abstract: In this paper 18 species belonging to the families Notodontidae, Noctuidae and Geometridae are reported for the first time in Thailand. For 5 taxa – *Bocula anticlina* Holloway, 2006, *Bocula tuhanensis* Holloway, 1976, *Marcillada endopolia* Hampson, 1926, *Sartagine ovafricta* Holloway, 2008 (Noctuidae), *Hypochrosis cryptopyrrhata* (Walker, 1862) (Geometridae) – it is presumably the first published evidence for continental Southeast Asia. Another 6 Notodontidae species as well as one Geometridae species are recorded for the first time in the southern Thai Peninsula. Furthermore records of 3 remarkable Notodontidae taxa observed in southern Thailand are considered. The collecting sites are briefly described and illustrated. Questions concerning the lepidopterological faunal composition in the Thai Peninsula are discussed shortly.

Neue und bemerkenswerte Funde von Nachtfaltern in Thailand (Lepidoptera: Geometridae, Noctuidae, Notodontidae).

Zusammenfassung: Während mehrerer kurzer Aufenthalte in Südthailand in den letzten zwei Jahrzehnten hatte der Autor die Gelegenheit, Nachtfalter in den Provinzen Chumphon, Suratthani und Nakhon Si Thammarat zu sammeln. In dem bisher aufgearbeiteten Material befinden sich 18 Neufunde aus den Familien Notodontidae, Noctuidae und Geometridae für Thailand – darunter mit *Bocula anticlina* Holloway, 2006, *Bocula tuhanensis* Holloway, 1976, *Marcillada endopolia* Hampson, 1926, *Sartagine ovafricta* Holloway, 2008 (Noctuidae) und *Hypochrosis cryptopyrrhata* (Walker, 1862) (Geometridae) möglicherweise 5 Erstmeldungen für das kontinentale Südostasien – sowie 7 Erstfunde (6 Notodontidae, 1 Geometridae) für die südthailändische Halbinsel. Diese werden zusammen mit drei weiteren aus faunistischer Sicht interessanten Notodontidae-Arten im vorliegenden Beitrag behandelt. Die Sammelstandorte in den Provinzen Chumphon, Suratthani und Nakhon Si Thammarat umfassen bewaldete Kalksteinerhebungen inmitten kultivierter Ebenen, Sekundärstandorte sowie gestörte und ungestörte Primärwaldbereiche. Sie werden abgebildet und kurz beschrieben. Offene Fragen zur Faunistik Südthailands in lepidopterologischer Hinsicht werden diskutiert.

Introduction

During the last two decades great efforts have been taken by researchers of different countries to study the moth fauna of Thailand. Museums and private collections have been investigated in order to summarize the present state of knowledge of numerous moth species belonging to different families. As a result illustrated catalogues considered as first attempts and introductions to the topics by the authors underlining the rich biodiversity and unique faunal composition of the kingdom were published (Pinratana & Lampe 1990, Inoue et al. 1997, Kononenko & Pinratana 2005, Zolotuhin & Pinratana 2005, Schintlmeister & Pinratana 2007, Černý & Pinratana 2009).

Mostly provided with basic information on distribution, phenology, biology and larval hostplants (where known), these works are not only a useful tool for identifying different moth taxa inhabiting the country (and neighbouring regions) but also for visualizing gaps and encouraging naturalists for further studies.

These endeavours indeed inspired many amateurs and professionals in collecting and studying Thai moths, and so new species and faunistic records were added since (e.g. Eitschberger 2003, Küppers & Janikorn 2007).

In this article the author intends to publish some interesting observations of moths obtained in the course of several private investigations in the Thai Peninsula during the last few years. As mentioned earlier (Lechner 2004), these observations took place during sporadic trips to southern Thailand, lasting mostly only 3–4 weeks. Much of the material collected is still stored unmounted in boxes or not exactly determined yet and so probably further reports will follow.

Presenting the collecting records here it is hoped that this publication is not only of faunistic value but also a contribution improving the phenological knowledge as well as the habitat preferences of the listed species, even if only confirmation of previous records. All specimens are deposited in the private collection of the author.

Collecting sites

Particularly through the cultivation of rubber trees and oil palms something like a modest prosperity has evolved in great parts of southern Thailand. People recognized that these plantations allow an easier and more comfortable life than in former times. So it is not surprising that the last remaining areas of primary forest outside the protected territories rapidly fall victim in order to be transformed into plantations. In fact the author had observed this process in the collecting area many times in the last 20 years. As a result the conditions for the survival even of small insects change dramatically, obvious in the fact that it is always harder to find an interesting collecting place outside the non-protected areas. Fortunately the landscape in southern Thailand consists not only of plains but also of limestone outcrops, which, although mostly very small, can serve as a refuge or footboard for some species due to the unsuitability for cultivation in great parts. But even here a potential for plantations is given in some cases and an increasing utilization of the usable ground can be observed (e.g. in the province Suratthani). So the distance between those "islands" is growing, surely not for the benefit of the inhabiting biocoenosis.

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The collecting sites of the reported species are situated in the provinces Chumphon, Suratthani and Nakhon Si Thammarat (Fig. 1). They comprise the already mentioned wooded limestone outcrops located inside great cultivated areas, secondary growth and disturbed or undisturbed lowland rainforests up to an elevation of nearly 180 m above sea level.

Province Suratthani

Most of the places in Suratthani province have been described earlier (Lechner 2004). As a supplementary note I want to mention that in the meantime the last fragment of primary vegetation growing between Hua Khlong and Khao Mak, i.e. directly southwest of Khao Mak, as well as that in Khao Sam Na illustrated in Lechner (2004: figs. 5, 8) has been destroyed and the cutting of the few remaining rainforest trees around Khao Nut is going on. I too want to use the opportunity to correct the GPS data published a few years ago (Lechner 2004). They are as follows: Thong Ao 9° 19.071′ N, 99°42.635′ E; Khao Nut 9°17.511′ N, 99° 42.759′ E; Hua Khlong 9°15.750′ N, 99°44.790′ E; Khao Sam Na 9°13.005′ N, 99°43.596′ E.

Having relatives on the nearby island Samui, which is famous for tourists, the author used the possibility for collecting when visiting the island. Although clearly influenced by agriculture and settlement meanwhile there are still interesting places for nature observations if moving into the heart of Koh (= Island) Samui. One of these places is Khao (= Mount) Lamai (Fig. 2). The collecting site is not far away from Lamai Beach, a well known traveller destination, and represents what I would call a fragment of a disturbed lowland rainforest. An approach road, not paved in 2007 and so with big holes due to the rainfalls but bituminous in 2009, lots of bamboo as well as cultivated fruit trees indicate human activities. Moth collecting in July 2007 was quite productive with strikingly many Sphingidae (e.g., *Ambulyx moorei* Moore, [1858], *Clanis bilineata sumatrana* Clark, 1936, *Marumba dyras javanica* (Butler, 1875), *Polyptychus trilineatus undatus* Rothschild & Jordan, 1903). In 2009 at the same time of the year considerably fewer species could have been attracted surely mainly due to strong wind. But it is a fact that this place has changed due to human influence and it is interesting to see how it will develop in the future.

Province Chumphon

The collecting site, situated in the Pa Toh district approximately 10 km west of Ban (= village) Lang Tang, is located in the hilly and mountainous terrain near the provinces Suratthani and Ranong (Fig. 3). Like the before described Khao Lamai it is a disturbed lowland rainforest, but distinctly larger and — in 2007 — seemingly less influenced than the preceding. At the time I was collecting there I noticed here and there a bamboo accumulation and a few planted fruit trees (mainly *Musa* ×*paradisiaca*, *Durio zibethinus* Murray) accompanied by secondary growth along the road consisting only of the pure red rainforest soil. In July 2007 this road was very slippery and wet due to heavy rainfalls in this area.

Province Nakhon Si Thammarat

Some of the specimens treated herein originate from near the northeastern edge of the Khao Luang National Park. This park was among the first protected areas created in Thailand and boasts the highest mountain in the Peninsular region after which it was named, the 1835 m high Khao Luang. The whole area is rather mountainous with some elevations rising up to 1000 m and more, which is remarkable because there are only a very few summits reaching this height in southern Thailand. My collecting activity in 2009 was confined to the primary lowland forest near the National Park border (Fig. 4).

Khao Nan, another primary lowland rainforest adjoining the Khao Luang NP area in the north, was visited in 2002.

New moth records for Thailand

Notodontidae

***Pseudogargetta marmorata* (Kiriakoff, 1967)** (Fig. 5)

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 66 m, 19./20. vii. 2009, lowland rainforest (1 ♂).

According to Holloway (1983) the species is rather rare and was collected in Borneo and Peninsular Malaysia in lowland forests. Schintlmeister (2008) mentions also records from Vietnam, China (Yunnan) and Sulawesi.

***Besaia* sp.** (Fig. 6)

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 66 m, 19./20. vii. 2009, lowland rainforest (1 ♂).

The status of the illustrated specimen is not yet clear but will be taken into consideration together with some other members of that group later by Schintlmeister (pers. comm.). However, the species represents a new record for Thailand and is thus listed herein.

***Phalera javana albifrons* (Walker, 1862)** (Fig. 7)

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 74 m, 30./31. vii. 2009, lowland rainforest (1 ♂).

This unmistakeable species is known to inhabit Java, Sumatra, Borneo and the Malay Peninsula (Holloway 1983). Being entirely Sundaic with incidence in adjacent Peninsular Malaysia, it is not surprising that it is also found in southern Thailand.

***Clostera bramah* Roepke, 1944** (Fig. 8)

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 74 m, 30./31. vii. 2009, lowland rainforest (1 ♂).

Due to their smaller size and resting position the *Clostera* species are quite inconspicuous moths. In the region all members of this genus seem quite rare combined with a great variability in some species (Schintlmeister, pers. comm.). *C. bramah* is known to inhabit lowland forests in Sundaland (Holloway 1983) but no records from Thailand have been reported so far.

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Noctuidae

***Simplicia robustalis* (Guenée, 1854)** (Fig. 9)

Chumphon, Pa Toh, 160 m, 11./12. VII. 2007, disturbed lowland rainforest (1 ♀).

This species covers a great geographical range including India as well as Sundaland to New Guinea and Queensland (Holloway 2008). It is surprising that there are no previous records from Thailand, the more so as a wider distribution inside the Kingdom can be supposed. However, the specimen referred to in this contribution originates in northernmost Sundaland and so there is still a large gap in the known range.

***Sartagine ovafricta* Holloway, 2008** (Fig. 10)

Chumphon, Pa Toh, 160 m, 11./12. VII. 2007, disturbed lowland rainforest (1 ♂).

This very recently described Herminiinae species from Brunei is reported as a rare species inhabiting different forest types like lowland dipterocarp, heath, coastal and plantation forest and so far only known from Borneo (Holloway 2008). Therefore the specimen from Thailand probably represents the first published record from continental Southeast Asia.

***Sarobacala albopunctata* (Semper, 1901)** (Fig. 11)

Chumphon, Pa Toh, 160 m, 11./12. VII. 2007, disturbed lowland rainforest (1 ♀).

With the exception of Java, *S. albopunctata* is known from the entire Sundaland including Bali. Records from Sulawesi require verification (Holloway 2005). Having found the species in NW Malaysia nearly 30 years ago, Bänziger (1982) supposed *S. albopunctata* to occur also in S Thailand. A long time period has past before this prediction could be confirmed, indicative of the state of knowledge concerning entomological research in the southern Thai Peninsula.

***Thoracolophotos albilimitata* Hampson, 1926** (Fig. 12)

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 66 m, 19./20. VII. 2009, lowland rainforest (1 ♂).

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 74 m, 30./31. VII. 2009, lowland rainforest (1 ♂).

Holloway (2005) reports it as an infrequent species of lowland forests known only from Borneo and Peninsular Malaysia until now.

***Mesosciera orientalis* Hampson, 1926** (Fig. 13)

Chumphon, Pa Toh, 160 m, 11./12. VII. 2007, disturbed lowland rainforest (1 ♀).

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 66 m, 19./20. VII. 2009, lowland rainforest (1 ♂).

M. orientalis has been recorded from Peninsular Malaysia, Sumatra and Borneo. There is also a single *Mesosciera* ♀ from the Philippines which status may be clarified if ♂♂ become available (Holloway 2005).

***Bocula bifaria* (Walker, [1863] 1864)** (Fig. 14)

Chumphon, Pa Toh, 160 m, 11./12. VII. 2007, disturbed lowland rainforest (1 ♂).

According to Holloway (2005), *B. bifaria* has been reported from Peninsular Malaysia, Sumatra, the Philippines and Borneo, where it is frequent in lowland forests.

***Bocula tuhanensis* Holloway, 1976** (Fig. 15)

Suratthani, Don Sak District, Don Sak vic., Khao Nut, 32 m, 6. II. 2000, limestone forest (1 ♂).

Suratthani, Don Sak District, Don Sak vic., Khao Nut, 32 m, 15. II. 2005, limestone forest (1 ♀).

Suratthani, Koh Samui, Lamai vic., Khao Lamai, 173 m, 24./25. VII. 2009, disturbed lowland rainforest (1 ♂).

Described from Gunung Kinabalu 34 years ago, it is surprising that this species has not yet been reported outside of Borneo, where it is frequent in different types of lowland forests including disturbed areas but also present in localities reaching up to 1200 m (Holloway 2005). Together with 3 specimens from Thailand the author has 2 further specimens from Sumatra (received from Bernhard Plössl who obtained them from E. W. Diehl) in his collection. Although collected only at two sites in Suratthani province it is obvious that *B. tuhanensis* has a wider distribution and it is presumably only a question of time until evidence from other Thai respectively Sundanian (and Indochinese?) localities will be published.

***Bocula anticlina* Holloway, 2005** (Fig. 16)

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 74 m, 30./31. VII. 2009, lowland rainforest (2 ♂♂).

Just recently described, this is another species known so far only from Borneo. Holloway (2005) refers to 2 specimens from Sarawak, collected in 1907/08 and 1977/78. Like the preceding species, it is apparent that *B. anticlina* is more widely distributed and will be found also in other parts of Sundaland.

***Marcillada endopolia* Hampson, 1926** (Fig. 17)

Chumphon, Pa Toh, 160 m, 11./12. VII. 2007, disturbed lowland rainforest (1 ♂).

Distributed on the Greater Sunda Islands (Holloway 2005), the record from Thailand is probably the first published evidence of this species from continental Southeast Asia — as are the preceding two species. There is only one recent specimen known from Borneo collected in lowland forest (Holloway 2005).

***Plusiodonta* cf. *calcaurea* Holloway, 2005** (Fig. 18)

Chumphon, Pa Toh, 160 m, 11./12. VII. 2007, disturbed lowland rainforest (1 ♂).

Again a recently described species occurring in Peninsular Malaysia and Borneo (Holloway 2005), as far as is currently known.

***Mecodina cineracea* (Butler, 1879)** (Fig. 19)

Chumphon, Pa Toh, 160 m, 11./12. VII. 2007, disturbed lowland rainforest (1 ♂).

In contrast to all previous species, *M. cineracea* is a northern element reported from Japan, Taiwan, China and the NE Himalaya, being very similar to the recently described *M. viridacea* Holloway, 2005 from Sunda-

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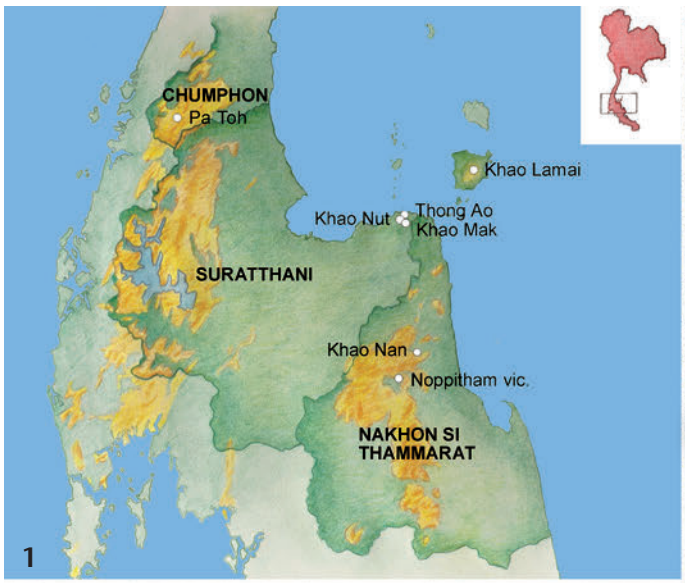

Fig. 1: Detail of the Thai Peninsula with the collecting localities in the provinces Chumphon, Suratthani and Nakhon Si Thammarat. **Fig. 2:** Forest at Khao Lamai (Koh Samui) with *Durio zibethinus* in the foreground (right). **Fig. 3:** Collecting site near Ban Lang Tang, Pa Toh district. **Fig. 4:** Lowland rainforest in the vic. of Noppitham, near the Khao Luang NP. — **Figs. 5–8:** Notodontidae. — **Fig. 5:** *Pseudogargetta marmorata.* **Fig. 6:** *Besaia* spec. **Fig. 7:** *Phalera javana albifrons*. **Fig. 8:** *Clostera bramah*. — Specimens not to the same size.

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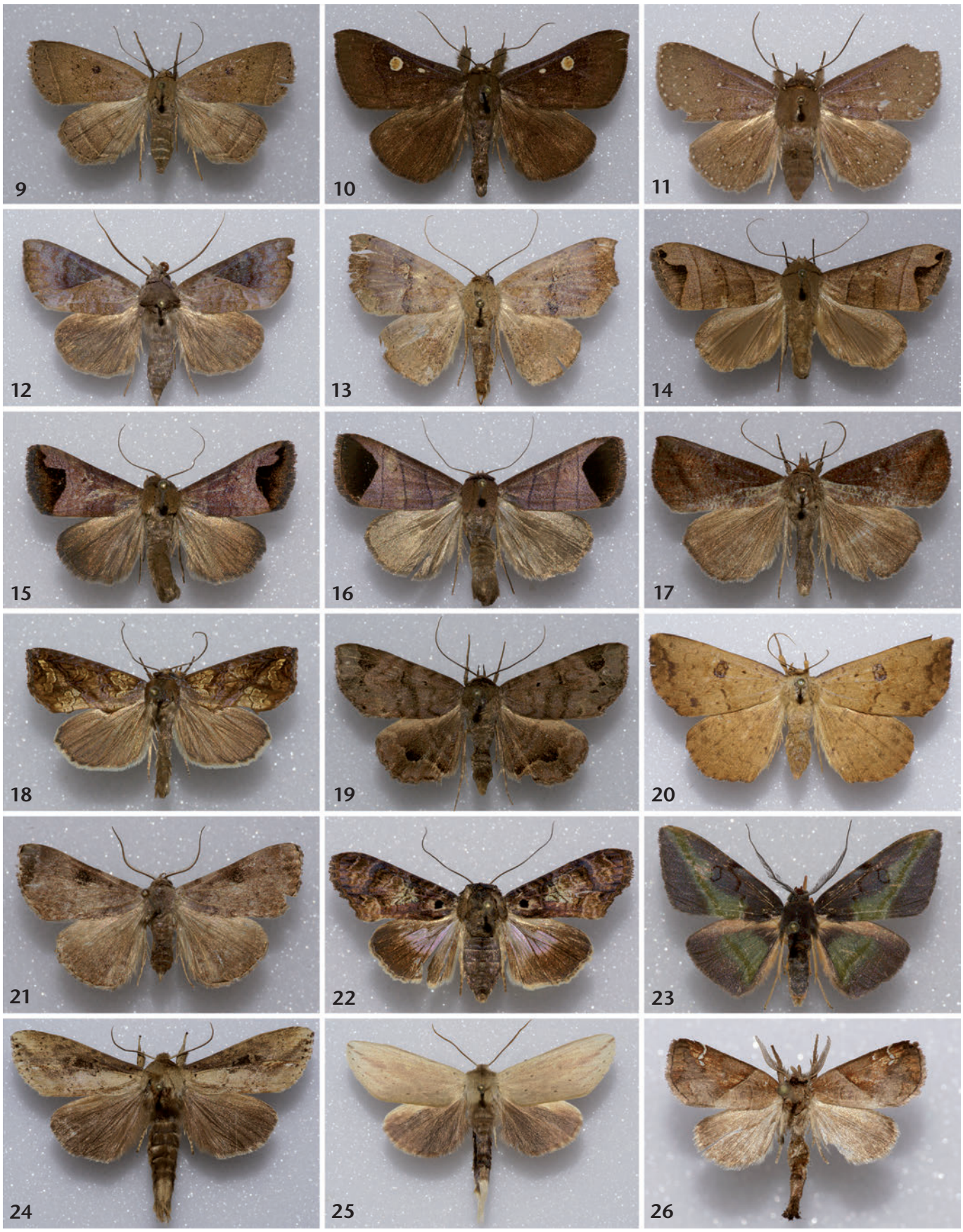

Figs. 9–22: Noctuidae. — **Fig. 9:** *Simplicia robustalis*. **Fig. 10:** *Sartagine ovafricta*. **Fig. 11:** *Sarobacala albopunctata*. **Fig. 12:** *Thoracolophotos albilimitata*. **Fig. 13:** *Mesosciera orientalis*. **Fig. 14:** *Bocula bifaria*. **Fig. 15:** *Bocula tuhanensis*. **Fig. 16:** *Bocula anticlina*. **Fig. 17:** *Marcillada endopolia*. **Fig. 18:** *Plusiodonta* cf. *calcaurea*. **Fig. 19:** *Mecodina cineracea*. **Fig. 20**: *Talariga capacior*. **Fig. 21:** *Eubryopterella cinerea*. **Fig. 22:** *Stictoptera repleta*. — **Fig. 23:** *Hypochrosis cryptopyrrhata* (Geometridae). — **Fig. 24–26:** Notodontidae. — **Fig. 24:** *Ramesa bhutanica*. **Fig. 25:** *Saliocleta* spec. **Fig. 26:** *Clostera costicomma*. — Specimens not to the same size.

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land in appearance (Holloway 2005). It is thus a little unexpected that the collected specimen represents the northern *M. cineracea* and not the southern *M. viridacea*, the more so as the former has not been recorded from Thailand so far. However, I suppose *M. cineracea* has been collected somewhere in the northern parts of Thailand but has not been published yet.

***Talariga capacior* Walker, 1858** (Fig. 20)

Suratthani, Don Sak District, Don Sak vic., Khao Nut, 32 m, 6. II. 2000, limestone forest (1 ♂).

Distributed from the NE Himalaya and Vietnam in the north to Java, Borneo and the Philippines (Holloway 2005) in the south and east, it is remarkable that there is no record from Thailand until now. Very likely it is as described for the preceding species.

***Eubryopterella cinerea* Holloway, 2005** (Fig. 21)

Chumphon, Pa Toh, 160 m, 11./12. VII. 2007, disturbed lowland rainforest (1 ♂).

Together with *E. triangulata* Holloway, 2005 it represents another very recently described species. Whilst *E. triangulata* is reported from Thailand already (Kononenko & Pinratana 2005), the rarer *E. cinerea* is known only from Peninsular Malaysia, Sumatra and Borneo (Holloway 2005).

***Stictoptera repleta* (Walker, [1863] 1864)** (Fig. 22)

Suratthani, Koh Samui, Lamai vic., Khao Lamai, 173 m, 24./25. VII. 2009, disturbed lowland rainforest (2 ♂♂).

The geographical range of this species extends from the NE Himalaya across Peninsular Malaysia to Sumatra and Borneo (Holloway 1985). Referring to the known distribution it is astonishing that there are no records from Thailand so far.

Geometridae

***Hypochrosis cryptopyrrhata* (Walker, 1862)** (Fig. 23)

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 66 m, 19./20. VII. 2009, lowland rainforest (1 ♂, 1 ♀).

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 74 m, 30./31. VII. 2009, lowland rainforest (2 ♂♂).

Although there is no comprehensive work published on the Geometridae of Thailand thus far, I like to include this species as new for the fauna of Thailand and probably continental Southeast Asia. Holloway (1994) describes it as common in the lowlands of Sumatra and Borneo. At my request Dr. Dieter Stüning, a well-known specialist on the Geometridae of Thailand and Southeast Asia in general, states that there is no material from Thailand up to present in the collections he is curating (Zoologisches Forschungsmuseum Alexander Koenig, Bonn). But maybe there are some Thai specimens in the unmounted Museum material not considered until now (Stüning, pers. comm.).

New records for the southern Thai Peninsula

Notodontidae

***Baradesa omissa* Rothschild, 1917**

Suratthani, Don Sak vic., Khao Mak, 10. III. 2000, limestone forest (1 ♂).

Suratthani, Koh Samui, Lamai vic., Khao Lamai, 173 m, 24./25. VII. 2009, disturbed lowland rainforest (2 ♂♂).

According to Schintlmeister & Pinratana (2007), this northern species known to occur from E Nepal and S China accross Myanmar and Indochina was found in all parts of Thailand except the south. The 3 specimens in the collection of the author show that this species has also found its way into the southern parts of the Kingdom.

***Ramesa bhutanica* (Bänziger, 1988)** (Fig. 24)

Chumphon, Pa Toh, 160 m, 11./12. VII. 2007, disturbed lowland rainforest (2 ♂♂).

Described from Bhutan and distributed from Nepal to N Thailand and N Vietnam, *R. bhutanica* is known to occur at elevations between 500 and 1500 m. From Thailand there is only reported a single ♂ from Nan collected in III. (Schintlmeister & Pinratana 2007). Due to the activity of collectors in northern Thailand I presume that there might be more material than a single specimen deposited in some private collections. However, the record of 2 ♂♂ in southern Thailand at around 160 m altitude is surprising and proves a wider distribution than supposed.

***Saliocleta* sp.** (Fig. 25)

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 66 m, 19./20. VII. 2009, lowland rainforest (1 ♂).

A revision of the Sundanian and Philippinian *postfusca*-complex by Schintlmeister showed that this group is taxonomically complicated. So it turned out that the species identified as *postfusca* in Schintlmeister & Pinratana (2007) is, in fact, not conspecific with this taxon (Schintlmeister, pers. comm.). Although it is still unclear which species was found, it is at least new for the Thai Peninsula.

***Phalera cossoides* Walker, 1863**

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 74 m, 30./31. VII. 2009, lowland rainforest (3 ♂♂).

Although not rare and widely distributed within the continental part of the Oriental region including Thailand there was no record from south Thailand so far (Schintlmeister & Pinratana 2007). The specimens collected in Nakhon Si Thammarat give a reference for its presence also in Sundaland.

***Rosama auritracta* (Moore, 1865)**

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 74 m, 30./31. VII. 2009, lowland rainforest (1 ♂).

Like the preceeding moths this northern species is not yet known from the southern part of the country, so this is the first report for Sundaland. This record fits the known phenology and habitat requirements.

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Clostera costicomma (Hampson, 1892) (Fig. 26)

Suratthani, Don Sak District, Don Sak vic., Khao Nut, 32 m, 27. II. 2005, limestone forest (1 ♂).

Reported from Pakistan, N and S India, Sri Lanka and southernmost China, this species was also recorded in northern Thailand. So far only one specimen was known from Thailand, taken in the mountains of Nan province in II. at 1150 m (Schintlmeister & Pinratana 2007). Surprisingly the author collected 1 ♂ in the lowland limestone forest at Khao Nut in Suratthani. Analogous to the Indian subcontinent this record gives proof of the distribution area extending much more southwards also in Southeast Asia. *C. costicomma* is found only solitarily and is very rarely seen in collections (Schintlmeister, pers. comm.).

Geometridae

Biston suppressaria (Guenée, [1858])

Suratthani, Don Sak District, Don Sak vic., Khao Nut, 32 m, 13. III. 2000, limestone forest (1 ♀).

Suratthani, Don Sak District, Don Sak vic., Thong Ao, 17. VII. 2009, coconut "forest" with secondary growth, fruit trees and single rainforest trees as well as coastal strand vegetation (1 ♂).

Distributed from India accross Burma to China, this Ennominae species is found also in Thailand and is known to occur in the northern and central parts of the country (Stüning, pers. comm.). In all the years of collecting in S Thailand I was only able to find 2 specimens of this variable species. Maybe there is further material from the Thai Peninsula in the collection of the Zoologisches Forschungsmuseum Alexander Koenig in Bonn waiting to be worked out by Stüning.

Remarkable records

The following records refer to species already known from Thailand. According to the references available regarding these taxa only a few specimens have been observed so far in the Kingdom. The information given below therefore is intended to improve the present knowledge and fill some gaps.

Notodontidae

Fentonia sumatrana Kiriakoff, 1974

Nakhon Si Thammarat, Noppitham vicinity, near Khao Luang NP, 74 m, 30./31. VII. 2009, lowland rainforest (1 ♂).

After Schintlmeister & Pinratana (2007), the most northern point of distribution lies in the southern Thai provinces of Yala and Narathiwat, near the Malaysian border. I collected a single ♂ – the third known specimen from Thailand – nearly 300 km further north.

Fentonia bipunctus Rothschild, 1917

Nakhon Si Thammarat, Noppitham vic., near Khao Luang NP, 74 m, 30./31. VII. 2009, lowland rainforest (3 ♂♂).

Although already known from southern Thailand, my records are worth publishing, because there are only 2 Thai specimens reported so far from the most southern province (Yala) and surprisingly also from the northern province Chiang Mai, collected in April and September (Schintlmeister & Pinratana 2007).

Epistauropus plagosus haxairei Schintlmeister, 2007

Nakhon Si Thammarat, Ban Khao Yai vic., near Khao Nan NP, 13. II. 2002, lowland rainforest (2 ♂♂).

Suratthani, Don Sak vic., Khao Mak, 21. II. 2002, limestone forest (1 ♂).

Suratthani, Koh Samui, Lamai vic., Khao Lamai, 173 m, 24./25. VII. 2009, disturbed lowland rainforest (1 ♂).

A very rare species (Schintlmeister, pers. comm.) with only 2 specimens known from Thailand so far, one from Chiang Mai in northern Thailand and one from Ranong in the southern part of the country. The author can add another 4 specimens.

Discussion

Zoogeographically the southern Thai Peninsula belongs to the Sundanian Zone. Since the works of Corbet (1941, 1945) it is well known that this northwesternmost section of Sundaland plays an important role as an intermingling zone of northern (continental) and southern (sundanian) butterfly species. Appealing to his own collecting as well as the observations during several investigations and expeditions made by well known entomologists in the first half of the last century he defined the area between south Burma and north Malaya as a faunal belt, intermediate in nature between the two adjoining zones, extending, roughly, from the state of Kedah in Malaya through southernmost peninsular Siam to Mergui in Tenasserim, and determined a clear faunal boundary line dividing this zone – designated earlier as Kedawi (Corbet 1941) – in the south from the true Malaysian zone based on indicator species and geographical races (Corbet 1949). It was supposed that this distinctly different faunal composition in Rhopalocera is mainly caused by climatic parameters (Zeuner 1941). Cotton et al. (2005) found out that *Losaria neptunus* (Guérin-Méneville, 1840) (Papilionidae) is separated subspecifically further north by an extended low terrain reaching from Phuket in the southwest to Suratthani in the northeast dividing the two mountain chains occuring in the Thai Peninsula and question Corbet's border line due to the low present state of knowledge in this part of the Kingdom. In this connection it seems interesting that Zeuner (1941) proposed Malacca was a chain of islands in certain phases of the last geological period with sea channels occurring in northern Perlis, between Trang and Suratthani – the low terrain referred to by Cotton et al. (2005) – and the Isthmus of Kra in the north of Ranong and Chumphon province.

Whilst Corbet's analysis gave an idea about the situation of butterfly species and geographical races along the southern frontier area of Kedawi there is no exact understanding about the situation of the northern limits in the range of Sundanian species as well as

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about the occurrence and apportionment of subspecies between the Thai-Malayan border up to Petchaburi and Ratchaburi provinces just southwest of Bangkok. As the present paper shows this area is still very poorly explored. Very likely the increasing seasonality with a more and more accentuated dryness will cause problems for many of the Sundanian species adapted to uniformly humid conditions and thus climatic factors here too playing an important role for the movement even if the one or the other southern species will stray further into continental Thailand. And it is not less interesting to see if the suppositions regarding the water channels as barriers for faunistic exchange could be confirmed by lepidopterological facts. Much more research is needed in the whole territory between Ratchaburi and the Malaysian border in order to get an idea of the movements and barriers influencing the limits of distribution as well as the situation of subspecies. So the faunistics of the Thai Peninsula, a transition zone between more seasonal and ever wet climates with an eventful past history, bears a great potential for further investigations. It is an area within easy access (but not everywhere without danger) and it is worthy of detailed study. We should not forget that it is also an area with a rapid extension of plantations and so an ongoing destruction of natural resources and habitats, representing the barriers of the present.

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